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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/549,383   | 09/15/2005  | Pertti Lintunen      | AWEK 3301           | 5399             |
| 7812   | 7590        | 08/05/2008           | EXAMINER            |                  |
| SMITH-HILL AND BEDELL, P.C.<br>16100 NW CORNELL ROAD, SUITE 220<br>BEAVERTON, OR 97006 |             |                      |                     | BREVAL, ELMITO   |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/549,383             | LINTUNEN ET AL.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | ELMITO BREVAL          | 2889                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 25 April 2008.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 9-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 9-17 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 25 April 2008 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

The amendment filed on 04/25/2008 has been entered.

Claims 9-17 are pending.

Claim 17 is a newly added claim.

The previous rejection has been withdrawn.

### ***Response to Arguments***

Applicant's arguments filed 04/25/2008 have been fully considered but they are not persuasive. The applicant has made two arguments: (1) it would not be feasible to use explosion welding to bond the metal member (80) of fig. 3 of the Ishiguro's reference (US. Pub: 2002/0055318) to the end (31) of the center electrode because the metal member would be deformed at the edges and it would not be bonded to the ends (42) of the ground electrodes (40); (2) the blank referred to in the abstract of Matsutani's reference is not a blank from which the electrode is separated but is the member that is processed to make and constitute the electrode.

In response to applicant's first argument: the examiner agrees that it would not be feasible to use explosion welding to bond the metal member of fig. 3 because that would cause deformation. However, figure 3 is a particular example which the examiner did not mention in the previous rejection. In the contrary, if explosion welding is used in figs. 5 and 8 for example, there will not be any deformation and bonding will be occur easily.

Regarding the second argument, the examiner has moved that rejection under the Ishiguro's reference. Therefore, the argument is moot.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to the examiner which parts the applicant is considered as the first and second composite members. For purpose of examination the examiner is considered items 6 and 7 from fig. 1 in one side as the first composite member and items 6 and 7 from the same fig. in the other side as the second composite member.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al., (US. Pub: 2002/0055318) of record by the examiner in view of Yamaguchi et al., (U.S. 3,803,892) of record by the examiner.

**Regarding claim 9,** Ishiguro ('318) teaches (in at least fig. 1) a spark plug for an internal combustion engine, the spark plug having a least two electrodes (30, 40) are

formed of a base part (10; i.e. the metal housing; [0049]) made of a substrate material and a surface part (60; i.e. the discharge member; see [0053]) made of a material more durable than the substrate material, wherein the surface part (60) is fastened to the first part (10) via an intermediate part (40).

However, Ishiguro ('318) does not teach the joint between the surface part (60) and the intermediate part (40) is an explosion welding joint.

Further regarding claim 9, Yamaguchi ('892) in the same field of endeavor teaches a spark plug wherein explosion welding is used to form the clad plate (col. 2, lines 17-18) for the purpose of having a suitable and durable welding joint.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the explosion welding process of Yamaguchi into the device of Ishiguro for the purpose of having a suitable and durable welding joint.

**Regarding claim 10,** Ishiguro ('381) teaches the surface part (60) is formed of at least one metal of the Pt group (Pt, Ir, Ru) or an alloy thereof ([0054]).

**Regarding claim 11,** Ishiguro ('381) teaches the joint between the surface part (60) and the intermediate part (40) is essentially homogenous on the whole surface area of the joint (fig. 8D).

**Regarding claim 12,** Ishiguro ('381) teaches (in least fig. 1) the joint between the substrate material of the base part (10) and the intermediate part (40) is a conventional melt part welding joint.

**Regarding claim 13,** Ishiguro ('381) teaches the material thickness of the surface part (60) perpendicular to the joint surface of it and the intermediate part (40) is 0.05-2 mm ([0072]-[0073]).

**Regarding claim 14,** Ishiguro ('381) teaches (in at least figs. 1, 5, and 8) a method for producing a spark plug having at least two electrodes (30, 40), in which the electrodes each include at least a base part (10; i.e. the metal housing) made of a substrate material of the spark plug, and surface part (60; i.e. the discharge member; [0053]), made of a material more durable than the substrate material, comprising the following steps: forming a blank part (best seen in figs. 5 and 8), comprising a surface part (60) and intermediate part (40), by joining the surface part (60) to the intermediate part (40); separating a part with a suitable form from the blank (best seen in figs. 5 and 8) to form the electrode of the spark plug, and fastening the part separated from the blank to the base part (10) and the intermediate part (40).

However, Ishiguro ('318) does not teach the joint between the surface part (60) and the intermediate part (40) is an explosion welding joint.

Further regarding claim 14, Yamaguchi ('892) in the same field of endeavor teaches a spark plug wherein explosion welding is used to formed the clad plate (col. 2, lines 17-18) for the purpose of having a suitable and durable welding joint.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the explosion welding process of Yamaguchi into the device of Ishiguro for the purpose of having a suitable and durable welding joint.

**Regarding claim 15,** Ishiguro ('381) teaches (in at least fig. 5) the intermediate part (40) of the blank is planar and the surface part (80) of the blank is planar and consists of at least one metal of the Pt group or an alloy thereof ([0054]).

**Regarding claim 17,** Ishiguro ('381) teaches (in at least figs. 1, 5 and 8) a method for producing a spark plug having at least two electrodes (30, 40), in which the electrodes each include at least a base part (10; i.e. the metal housing) made of a substrate material of the spark plug, and surface part (60; i.e. the discharge member; [0053]), made of a material more durable than the substrate material, comprising the following steps: forming a blank part (best seen in figs. 5 and 8), comprising a surface part (60) and intermediate part (40), by joining the surface part (60) to the intermediate part (40); separating a part with a suitable form from the blank (best seen in figs. 5 and 8) to form the electrode of the spark plug, and fastening the part separated from the blank to the base part (10) and the intermediate part (40); providing a second composite member that comprises a second surface (60; i.e. the second side) part made of a material more durable than the substrate material of the base part (10) of the center electrode (30) and also comprises an intermediate part (40); fastening the second composite member to the base part (10) of the center electrode (30) so that the surface part of the first composite member is in spaced confronting relationship with the surface part of the second composite member.

However, Ishiguro ('318) does not teach the joint between the surface part (60) and the intermediate part (40) is an explosion welding joint.

Further regarding claim 14, Yamaguchi ('892) in the same field of endeavor teaches a spark plug wherein explosion welding is used to formed the clad plate (col. 2, lines 17-18) for the purpose of having a suitable and durable welding joint.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the explosion welding process of Yamaguchi into the device of Ishiguro for the purpose of having a suitable and durable welding joint.

Claims 9, 14 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsutani (US. Pat: 5,395,273) of record by the examiner in view of Yamaguchi et al., (U.S. 3,803,892) of record by the examiner.

**Regarding claim 9,** Matsutani ('273) teaches (in at least fig. 1) a spark plug for an internal combustion engine, the spark plug having at least two electrodes (4, 1), in which the electrodes are formed of a base part (2; i.e. the metallic shell) made of substrate material and a surface part (5) made of a material more durable than the substrate material (col. 2, lines 39-44; i.e. platinum, iridium...), wherein the surface part (5) is fastened to base part via an intermediate part (not labeled; best seen in fig. 3).

However, Matsutani ('273) does not teach the joint between the surface part (11, 13) and the intermediate part (1) is an explosion welding joint.

Further regarding claim 9, Yamaguchi ('892) in the same field of endeavor teaches a spark plug wherein explosion welding is used to formed the clad plate (col. 2, lines 17-18) for the purpose of having a suitable and durable welding joint.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the explosion welding process of Yamaguchi into the device of Matsutani for the purpose of having a suitable and durable welding joint.

**Regarding claim 14,** Matsutani ('273) teaches (in at least fig. 3) a method for producing a spark plug having at least two electrodes (1, 4), in which the electrodes each include at least base part (2; i.e. the metallic shell) made of substrate material and a surface part (11, 13; col. 2, lines 26-35; i.e. the clad metal and the firing portion) made of a material more durable than the substrate material, comprising: the following steps: forming a blank comprising a surface part (11, 13) and an intermediate part (1; i.e. the ground electrode); separating a part with a suitable form from the blank (i.e. the region between item 1 and 11, 13) to form the electrode of the spark plug, and fastening the part separated from the blank to the base part (2) of the spark plug so that a joint is made between the base part (2) and the intermediate part (11, 13).

However, Matsutani ('273) does not teach the joint between the surface part (60) and the intermediate part (40) is an explosion welding joint.

Further regarding claim 14, Yamaguchi ('892) in the same field of endeavor teaches a spark plug wherein explosion welding is used to formed the clad plate (col. 2, lines 17-18) for the purpose of having a suitable and durable welding joint.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the explosion welding process of Yamaguchi into the device of Matsutani for the purpose of having a suitable and durable welding joint.

**Regarding claim 16**, Matsutani ('273) teaches (in at least fig. 1) the surface part of the blank (11, 13) of the blank is formed of powder consisting of at least one metal of the Pt group or an alloy thereof (col. 3, lines -12).

However, Matsutani ('273) does not teach the joint between the surface part (11, 13) and the intermediate part (1) is an explosion welding joint.

Further regarding claim 16, Yamaguchi ('892) in the same field of endeavor teaches a spark plug wherein explosion welding is used to form the clad plate (col. 2, lines 17-18) for the purpose of having a suitable and durable welding joint.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the explosion welding process of Yamaguchi into the device of Matsutani for the purpose of having a suitable and durable welding joint.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMITO BREVAL whose telephone number is (571)270-3099. The examiner can normally be reached on M-F (8:30 AM-5:00 Pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toan Ton can be reached on (571)-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 22, 2008  
Examiner  
Elmito Breval

/Joseph L. Williams/  
Primary Examiner, Art Unit 2889